Creating an Edible Landscape in Scott County

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Resilient Communities Project
University of Minnesota
Building community-university partnerships for sustainability

The project on which this report is based was completed in collaboration with Scott County as part of the 2018–2019 Resilient Communities Project (RCP) partnership. RCP is a program at the University of Minnesota's Center for Urban and Regional Affairs (CURA) that connects University faculty and students with Minnesota communities to address strategic projects that advance local resilience and sustainability.

The contents of this report represent the views of the authors, and do not necessarily reflect those of RCP, CURA, the Regents of the University of Minnesota, or Scott County.

This publication may be available in alternate formats upon request.

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Building Community-University Partnerships for Resilience

Table of Contents

EDIBLE LANDSCAPE

Food Forest, Urban Permaculture, Community Agriforestry, Edible Landscaping

Scott County Public Health
Building a Healthy Community

What is Edible Landscaping?

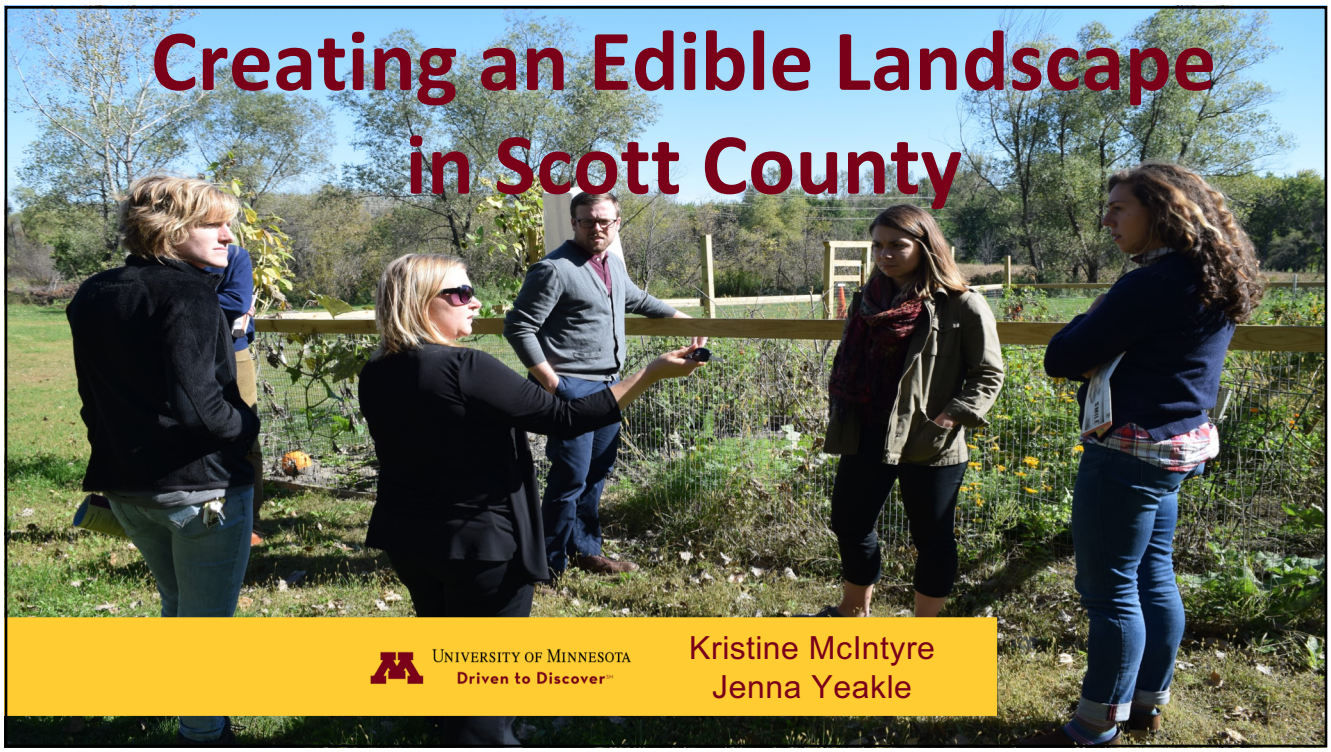
Edible landscaping is an alternative approach to producing local food in a public space. It is designed to fit within the surrounding ecosystem, mirroring what natural features exist, while addressing public access to fresh, healthy and geographically relevant food.

How do I use it?

A community-based edible landscape is open to the public to enjoy. All are welcome to visit and forage. Follow instructions presented on wayfinding signs to guide your foraging. Take what you need, pick up after yourself, and share with your neighbors.

Why is it important?

Edible landscaping provides a long-term solution to supporting an inclusive and healthy local food system and climate change resilience.



Team Introductions

Kristine McIntyre, MPH Candidate
School of Public Health - Nutrition

Interest Areas: Nutrition, food insecurity, food justice, food culture

Project Role: Develop list of edible plants that can grow in Scott County and are culturally appropriate for community members

Jenna Yeakle, MPH Candidate
School of Public Health - CHP

Interest Areas: community organizing, health equity, food justice, sustainability

Project Role: Assess the feasibility of an edible landscape in Scott County as it relates to community engagement (education and awareness, maintenance, and utilization)

Center for Urban and Regional Affairs: Resilient Communities Project

Sarah Tschida, Program Coordinator, Resilient Communities Project

Connect local communities with the University of Minnesota to advance community resilience and student learning through collaborative, course-based projects

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University of Minnesota
Building Community-University Partnerships for Resilience

Scott County Public Health

Lisa Brodsky, Public Health Director
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Family Health
Disease Prevention
Emergency Preparedness
Public Health Clinics

Scott
Scott County Public Health
Building a Healthy Community

Scott County Public Health

Healthy Communities with the Statewide Health Improvement Partnership

Supports community driven solutions to expand opportunities for active living, healthy eating and commercial tobacco-free living, helping all people in Minnesota prevent chronic diseases including cancer, heart disease, stroke and type 2 diabetes.

Scott County Public Health

In Minnesota, 1 in 10 people do not have enough food. 8.2% of Scott County households reported in 2010 being food insecure.

For children, this percentage increased to 12.6% in 2010. Research indicates that children in food-insecure households are at greater risk for adverse physical and mental health outcomes.

Scott County conducted a Health Equity Data Analysis as part of its 2040 comprehensive plan, finding that residents prefer to eat more locally grown, healthy food options.

Scott County Public Health + CURA
Resilient Communities Project
Creating an Edible Landscape

We are now exploring the feasibility of and beginning the planning stages for a "food forest" or edible landscape project within publicly owned land to address food insecurity in Scott County.

Scott County Public Health
Building a Healthy Community

Resilient Communities Project
University of Minnesota
Building Community-University Partnerships for Resilience

What is Edible Landscaping?

Food Forest
Permaculture
Edible Landscaping

Edible Landscaping

What is edible landscaping?

Edible landscaping is an alternative approach to producing local food in a public space. It is designed to fit within the surrounding ecosystem, mirroring what natural features exist, while addressing public access to fresh, healthy and geographically relevant food.

Why is it important?

Edible landscaping provides a long-term solution to supporting an inclusive and healthy local food system and climate change resilience.

Creating an Edible Landscape Project Overview

Input	Activities	Outputs	Outcomes	Impact
Culminating Experience Master's Projects through the School of Public Health at the University of Minnesota and the Center for Urban and Regional Affairs Resilient Communities Project	Literature Review Informational interviews with Scott County public health stakeholders Surveys with food shelf participants in Scott County	Plant list Fact sheets and example tools Recommendations for next steps Final draft of culminating experience field reports	Increased access to healthy and culturally relevant food through edible landscaping in Scott County	Reduced rates of food insecurity Reduced rates of chronic disease

Literature Review Themes

Problem: Food Insecurity

Social and environmental determinants of food insecurity creates disparities among people experiencing food insecurity.

Traditional services for people experiencing food insecurity include SNAP, WIC, free and reduced lunch programs, food shelves, free or low cost community dinners.

There exists a gap in environmental level interventions.

Intervention: Edible Landscaping

Low-cost, low-maintenance, and accessible community-based intervention.

Edible landscaping, particularly food forests, activates public space and enhances the existing ecosystem, ensuring long-term viability.

Informational Interviews: Methods

With direction from Scott County Public Health team, Kristine and Jenna conducted semi-structured, exploratory interviews with potential stakeholders.

Notes were taken during interviews and common themes as well as important topics and questions were compiled after each interview. These exploratory, informational interviews were significant in directing the future of this project.

Interview Questions

Informational Interviews: Common Themes

Themes

Location is critical
Uncertainty of cost and scope
Possible models - residential edible landscaping, city ordinance on edible landscaping, and supporting a public space for edible landscaping
Volunteer workforce vs. parks or public works maintenance crew

Things to Consider

Rules of the forest
Wayfinding signage - rules, plant identification, seasonality
Community education - how to forage and how to cook with foraged foods

Community Surveys: Methods

Two methods were used to survey the CAP Agency and Peace Center food shelves in Scott County.

Method 1: Plant List and Community Engagement Dot Charts

Food shelf participants selected their preferred plants, edible landscape locations, times of visiting, and tools needed to use an edible landscape via a dot chart.

Method 2: Demographic Information and Plant List Form

Food shelf participants completed a form, gathering demographic information and preferences for plants to be included in an edible landscape.

Community Surveys: Results

R = 62

Age

18-28 6% **29-39** 19% **40-50** 27% **51-61** 16% **62+** 30%

Gender

Female 83% **Male** 16%

Race

African-American 8% **American Indian** 4%
Asian/Pacific Islander 8% **Caucasian** 64% **Latino** 8%
Multi-racial 6%

First Language

English 80% **Spanish** 8% **Russian** 8% **Cambodian** 3%
Vietnamese 1%

Zip Codes

55438 - 1%
55437 - 1%
55379 - 32%
55378 - 4%
56071 - 19%
55372 - 8%
55352 - 4%
55318 - 1%
55020 - 4%
56011 - 6%
55054 - 1%
56069 - 1%

Community Surveys: Results

Where would you like to see an edible landscape? Choose one. R = 38

Trails - 13%
Parks - 47%
Schools - 28%
Rivers - 10%

When would you consider visiting an edible landscape to forage? Choose up to two. R = 53

Day Time - 32%
Night Time - 5%
Week Days - 30%
Weekends - 32%

What do you need to help you use an edible landscape? Choose up to three. R = 73

Educational Materials - 13%
Cooking Classes - 13%
Tours - 16%
Identification Signs - 26%
Reusable Bags - 15%
Foraging Tools - 8%

Community Surveys: Results

Fruit R=68

Apple: 15
Apricot: 4
Barberry: 0
Blackberry: 4
Blueberry: 12
Cherry: 12
Chokecherry: 0
Crabapple: 2
Cranberry: 2
Currant:2
Desert Lime: 1
Elderberry: 0
Grape: 11
Hawthorn: 0
Honeyberry: 2
Huckleberry: 1
Kiwi: 7
Korean Mountain Ash: 0
Lingonberry: 2
Loganberry: 0
Mayapple: 0
Mayhaw: 0
Medlar: 1
Melon: 14
Mulberry: 3
Nannyberry: 0
Pear: 10
Persimmon: 2
Plain Prickly Pear: 1
Plum: 8
Raspberry: 14
Seaberry: 0
Serviceberry: 0
Silverberry: 1
Strawberry: 20
Watermelon:13

Vegetables R=68

Asparagus: 17
Beet: 6
Broccoli: 11
Brussel Sprouts: 3
Cabbage: 6
Carrot: 8
Cauliflower: 5
Chard: 1
Chinese Artichoke: 0
Collard Green: 1
Corn: 10
Cow Parsnip: 0
Cucumber: 21
Eggplant: 4
Fennel: 1
Fiddlehead: 0
French Sorrel: 0
Gourd: 0
Green Purslane: 0
Green Spray Mibunas: 0
Kale: 4
Kohlrabi: 1
Lamb Quarters: 3
Leek: 1
Lettuce: 5
Mizunas: 0
Mustard Green: 1
Onion: 9
Pac-Choi: 0
Parsnip: 0
Pokeweed: 0
Potato: 9
Pumpkin: 2
Radish: 3
Rhubarb: 3
Ramp: 0
Rutabaga: 1
Spinach: 8
Squash: 5
Sweet Potato: 1
Tatsoi: 0
Tomato: 9
Turnips: 0
Watercress: 1
Yam: 2

Community Surveys: Results

Herbs/Spices

Angelica: 0
Arugula: 1
Basil: 16
Caraway: 1
Chervil: 0
Chives: 10
Cilantro: 15
Comfrey: 1
Dill: 14
Garlic: 25
Goldenrod: 1
Hyssops: 0
Juniper: 0
Land Cress: 0
Lemon Balm: 2
Lemon Verbena: 2
Lovage: 0
Marjoram: 1
Mugwort: 0
Mustard Green: 1
Nettle: 0
Oregano: 7
Parsley: 10
Peppermint: 7
Rosemary: 8
Saffron: 0
Sage: 7
Salad Burnet: 0
Sassafras: 0
Solomon's Seal: I
Spearmint: 5
Sumac: 0
Summer Savory: 1
Sweet Woodruff: 0
Tansy: 3
Tarragon: 2
Thyme: 6
Veronica: 0
Welsh Onion: 4

Flowers

Balloon Flower: 5
Begonia: 1
Bergamot: 2
Bladder Campion: 0
Borage: 0
Daisy: 8
Dandelion: 1
Daylily: 7
Eastern Redbud: 0
Feverfew: 1
Fireweed: 2
Geranium: 4
Gladiolus: 7
Heather: 1
Lilac: 12
Linden: 1
Marigold: 8
Nasturtium: 2
Pansy: 5
Peony: 10
Primrose: 1
Purple Cone: 3
Roman Chamomile: 3
Rose: 12
Sunflower: 12
Violet: 8
Whorled Tickseed:
Wild Columbine: 1

Community Surveys: Results

LINK TO RESULTS IN EXCEL

Nuts

Acorn: 2
Beech Nut: 1
Bitternut: 2
Chestnut: 5
Hazelnut: 12
Hickory Nut: 2
Pecan: 19
Pignut: 0
Pinenut: 7
Walnut: 12

Legumes

Adzuki Bean: 1
Black Bean: 8
Cranberry Bean: 1
Edamame: 7
Faba Bean: 0
Great Northern Bean: 4
Green Bean: 16
Hog Peanut: 0
Kidney Bean: 7
Lentil: 3
Lima Bean: 2
Navy Bean: 5
Peas: 19
Pinto Bean: 5
Scarlet Runner Bean: 1
Soybean: 2
White Lupins: 0

Team Deliverables

Nutrition

Fact Sheet: Food Insecurity

Fact Sheet: Understanding Food Culture

Fact Sheet: Somali Cultural Foods

Fact Sheet: Russian Cultural Foods

Master Plant List Including Nutrition Facts

Next Step Recommendations

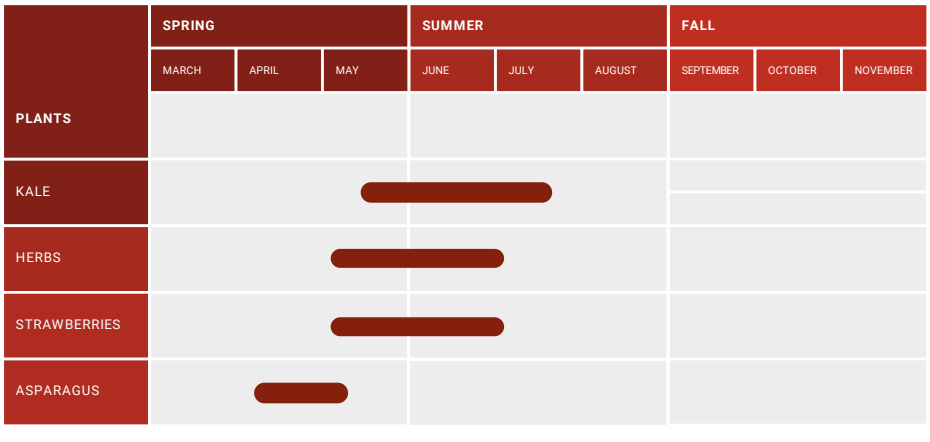
Community Engagement

Fact Sheet: Edible Landscaping

Community Engagement Tools:

Foraging Plants Seasonality Charts
Wayfinding Sign Example
Mock Volunteer Newsletter
Foraging Curriculum Suggestions

Creating an Edible Landscape



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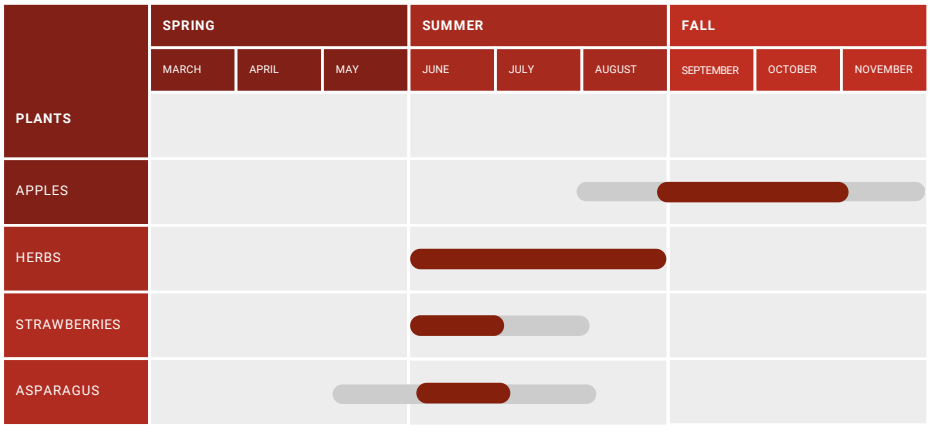
Foraging in an Edible Landscape



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Final Recommendations

Nutrition and Plants

Suitable Spaces

Successful Models

Awareness Building and Community Education

Potential Partners

Nutrition and Plants

Plant List

Identifying potential plants is an iterative process and is largely dependent on the secured space for the edible landscape and the needs of the surrounding community.

It is recommended that a location first be determined before plants are selected. Once a location is selected, defining characteristics of the land should be determined and the plant list should be narrowed down to plants that can thrive in the given environment. Lastly, the surrounding community should be asked to select the plants they would like for inclusion based on the narrowed down plant list.

Suitable Spaces

Ideal spaces for an edible landscape include:

Trails
Rivers
Parks
Schools

Per our conversation with the City of Shakopee, below is a list of potential spaces to implement edible landscaping:

Holmes Park
Windermere
Hiawatha Park
Riverside Fields
17th Ave Sports Complex
Ridge Creek
Eagle Creek
Scenic Heights

Successful Models (map)

Below is a (non-exhaustive) list of successful edible landscaping models across the United States:

Seattle, WA - Beacon Food Forest

Atlanta, GA - Urban Food Forest

Kansas City, Kansas - Cultivate KC

Glendale, OH - Keep Akron Beautiful

Madison, WI - Madison Fruits and Nuts

San Francisco, CA - San Francisco Urban Orchard Project

Awareness Building and Community Education

Communication to the public as well as the intended visitors of the space through existing partnerships: newsletters, flyers, maps, and other educational materials

Community education classes about foraging and food preparation through existing partnerships: topics can include seasonality of planting and harvesting, foraging best practices, "rules of the forest," herbs and medicine, and cooking with your harvest

Wayfinding signage within the space to instruct and educate visitors

Potential Partners in Scott County

City of Shakopee

City of Prior Lake

Shakopee Parks and Rec Board

Three Rivers Park District Partnership

Shakopee Mdewakanton Sioux Community

Compass Learning Center, New Prague

University of Minnesota Extension - SNAP Ed

Southwoods Ecosystems Ecological Design

What's Next?

- Continue to develop plant list
  - Link to recommendations and outline of tasks
- Identify land that can support edible landscaping
- Identify financial owner(s)
- Identify maintenance owner(s)
- Identify programming owner(s)
- Identify community stakeholders for promotion and education

Creating an Edible Landscape Evaluation Map

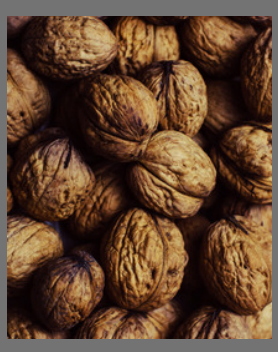

Thank you!

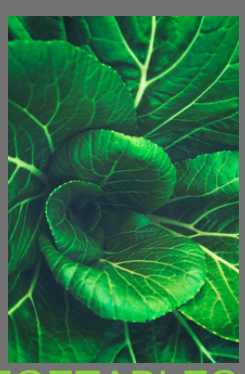
SCOTT COUNTY FOOD FOREST

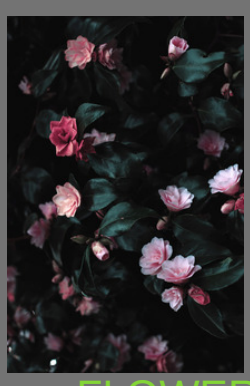
WHAT'S HERE?

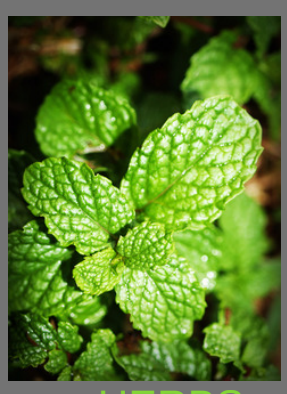
Scott County Public Health
Building a Healthy Community


FRUITS


NUTS


VEGETABLES


FLOWERS


HERBS

PLEASE

- Only take what you need
- Pick up after yourself
- Share with your neighbors

WANT TO GET INVOLVED?

Great! We have community work days once a month, and we welcome all ages and abilities.

Contact Scott County at 555-555-1234 or email info@scottcounty.gov for more information.

HOW TO FORAGE

Look for signs to help you identify plants and guide your foraging.

Each sign will inform you of the plant name, best time to forage, how much to take, and what the plant can be used for!

PLANT: Kale

BEST TIME FOR FORAGE: June - August

PLEASE TAKE: 1 per person, 3 per family

GOOD FOR: Salads, smoothies, soups

In Partnership with the City of Shakopee and Project for Resilient Communities with the Center for Urban and Regional Affairs - University of Minnesota

SHAKOPEE

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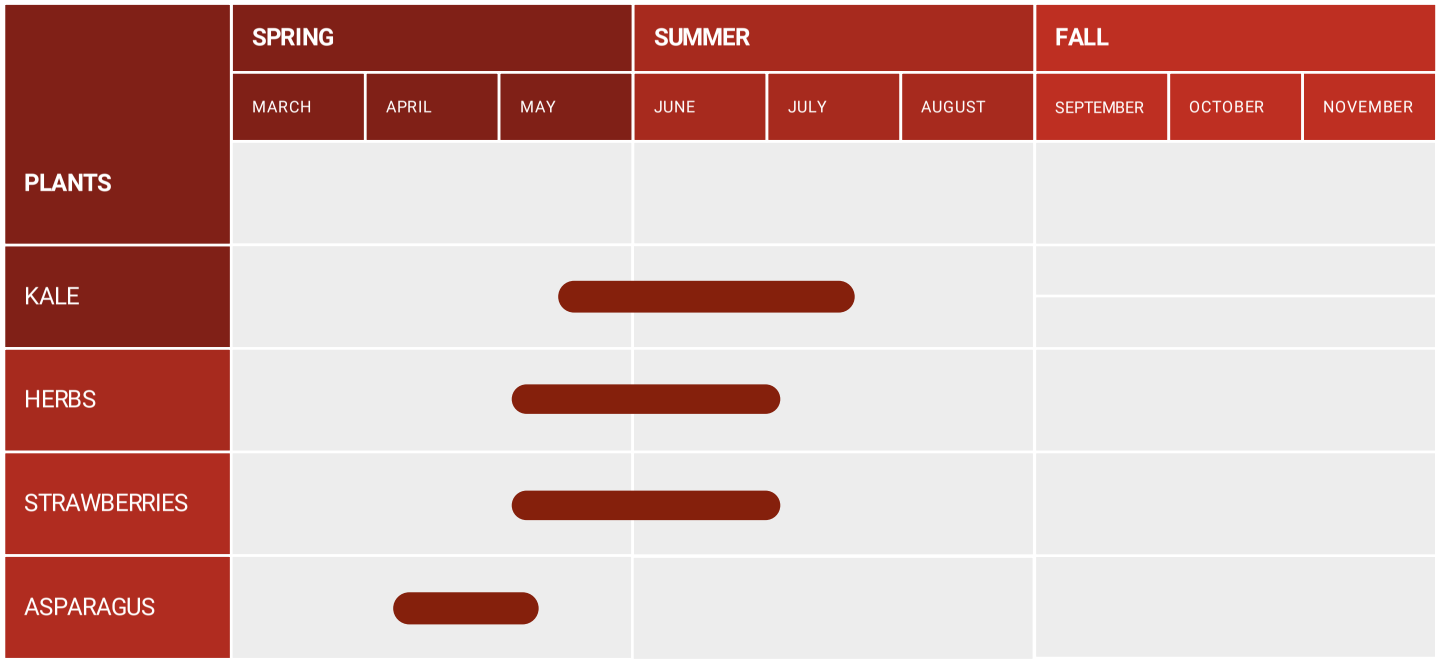
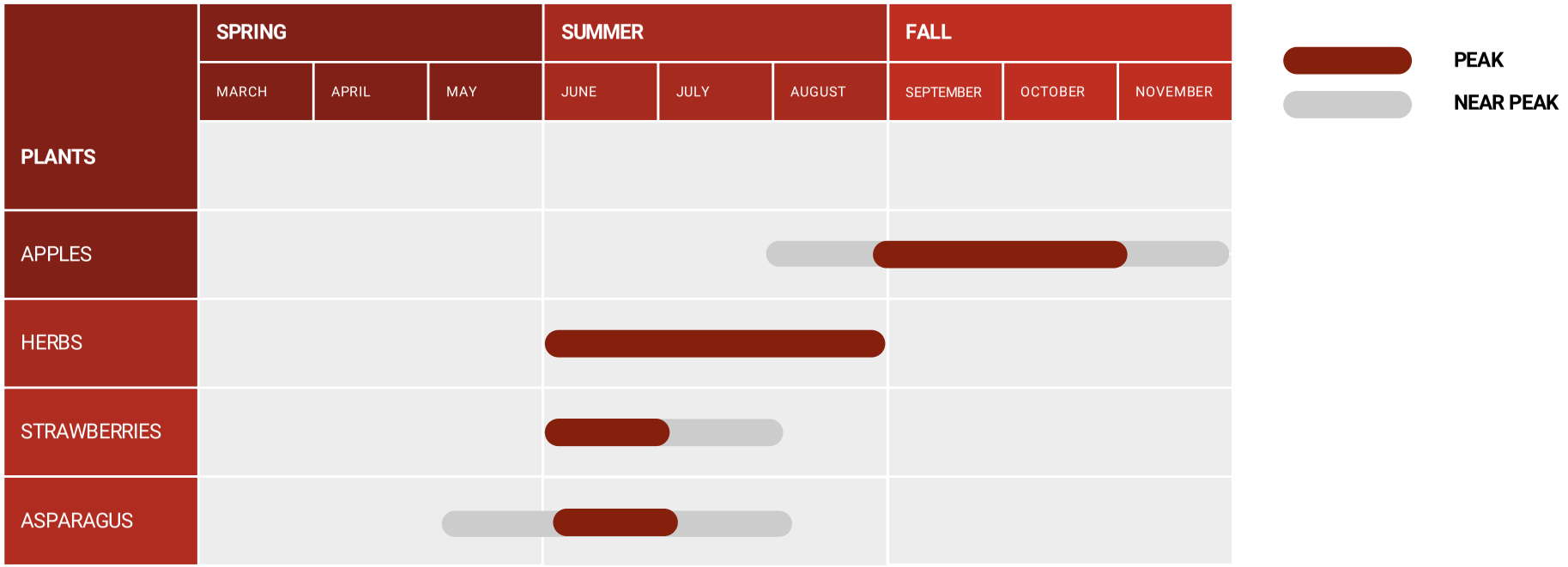
Creating an Edible Landscape



Foraging in an Edible Landscape



Volunteer E-Newsletter Example
Modeled after the Beacon Food Forest e-newsletters

Subject: Monthly Community Work Party this Saturday!

Scott County Food Forest - Resilient Communities

Hello, Friends of the Forest!

Mark your calendar for the upcoming **Community Work Party on Saturday, July 20th 10am - 3pm**! Rain or shine. Lunch provided and donation based.

What to Bring:

- Dress for hot weather.
- Bring a water bottle and work gloves if you have them.
- Bring a bowl and fork if you can.

The Food Forest team will provide water jugs, sunscreen and a good time!

RSVP here: http://www.scottcounty/foodforest/events.gov.

All are welcome!

Upcoming Food Forest Community Workshops:

Medicinal Herbs 7/25
Join local herbalist Gerry Mandering on Thursday, July 25th 5-7pm at the Shakopee Library for an interactive workshop on food forest medicinal herbs. Learn about how to harvest and use medicinal plants at the Scott County Food Forest. Learn about herbs to heal wounds, break fevers, stimulate the immune system and more. The class covers the practicalities of herbalism, such as when and how to harvest particular plants, how to dry them, and how to use them.

Register here: http://www.scottcounty/foodforest/events.gov

All workshops are free but donations are always appreciated!

Support your community:

The Scott County Food Forest is a volunteer-run program. Become a sustaining member by giving monthly at an amount that makes sense for you! Your investment advances our shared vision for a sustainable, community-based food system available to all. Thank you for your support!

Join our sustaining membership here: http://www.scottcounty/foodforest/support.gov

UNDERSTANDING FOOD CULTURE

PRESENTED BY: SCOTT COUNTY PUBLIC HEALTH 2019

INTRODUCTION

The frequency of our meals and the manner in which we dine have been heavily influenced by the society we live in. These shared beliefs on what is edible and socially acceptable has become our comparison for what is considered "normal" eating habits. But how one society eats many be completely different from another. These shared practices within each society are what we refer to as food culture (1).

FOOD & CULTURE

Food culture is defined as the shared beliefs, attitudes, and practices surrounding the production, distribution, and consumption of food (2). Traits within each culture are not genetically inherited; instead they are learned through a lifetime of observation and socialization in a process known as enculturation (3).

FOUR DIMENSIONS OF FOOD CULTURE

In each society, there are many unspoken rules about what foods and behaviors are acceptable during meal times. In an effort to simplify this, we have created four dimensions to describe food culture.

TIMING

The timing of meals and foods eaten at those times, tend to be different for each society. In one society the first meal of the day might be held at 7 a.m. while another is held at 11. Americans consider scrambled eggs and pancakes to be breakfast foods. But in some parts of Asia, soup is served as the first meal of the day (3).

EDIBLE

Each society has a perception of what foods are edible. This can refer to the food itself, quality indicators (fresh vs frozen, unripe vs ripe), and how it's prepared. For example, some might find it repulsing to eat insects, while others may see it as a delicacy. Some cultures may find it acceptable to eat raw fish while other cultures prefer it to be cooked.

SYMBOLISM

Symbolism by definition refers to the act of attributing meaning to natural objects (4). In each society different foods hold different symbolic meanings. This can stem from economic status, religion, holidays/celebrations, and health. For example, in some societies certain foods are considered sinful or forbidden such as alcohol. In other societies, certain foods could be viewed as healing remedies such as tea.

ETIQUETTE

Also known as table manners, etiquette refers to the "proper" way to eat in each society. This can determine what utensils are used (if any at all), how to hold and use each utensil, where you sit at the table, how you sit (on the floor crossed legged, sitting straight up with your back resting on the chair), what clothes are worn, how the meal is served (plated vs family style), and what is discussed at meals.

CORE FOODS

The foods typically eaten varies between each society. The Core and Complementary Foods Model is useful when understanding how often certain foods are consumed (3).

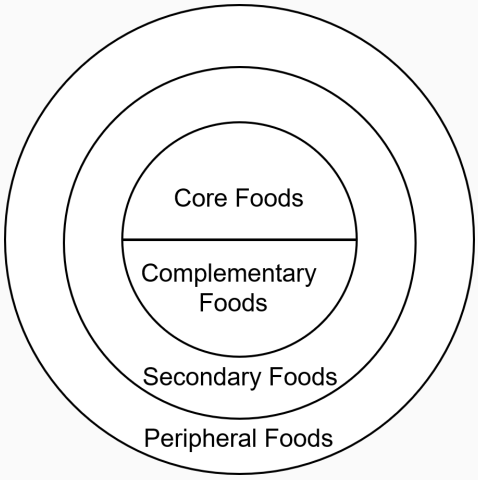
Core Foods: Foods eaten regularly or on a daily basis. These are what are often considered staple foods.

Complementary Foods: Food served in smaller quantities used to complement and encourage consumption of core foods.

Secondary Foods: Food widely eaten in a society but eaten less frequently.

Peripheral Foods: Foods eaten sporadically and reflect individual food preference rather than cultural group practices.

Core and Complementary Food Model



http://spectrum.diabetesjournals.org/content/17/4/200

EVER-CHANGING FOOD CULTURE

Food culture is always changing despite it being passed from one generation to the next. As the environment changes and new ideas emerge food culture adapts to meet the physical and emotional needs of the group. In addition, cultures influence other cultures and each will often adapt certain traits from the other which has been accelerated over the last few decades through globalization (5).

CONCLUSION

Food culture is a fascinating yet widely complex concept. This fact sheet provides a brief overview of food culture, but touches on only a few factors that influence the shared beliefs, attitudes, and practices of different groups. It's our shared responsibility as public health workers to continue to learn about food and culture so that we can respectfully respond to the needs of our diverse community. And in doing so, we can improve the effectiveness of the public health services we provide to reduce health disparities within Scott County.

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3. Kittler, Pamela Goyan, and Kathryn Sucher. Food and Culture. Belmont, CA : Wadsworth/Cengage Learning, 2012.
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5. Global Gastros. “Food Culture and Globalization.” Global Gastros, Global Gastros, 30 June 2017, globalgastros.com/food-culture/globalization.

East African Cultural Foods

Scott County Edible Landscape

Vegetables	Artichoke	Beets	Broccoli	Cabbage	Carrot
	Chard	Collard	Corn	Cucumber	Lettuce
	Okra	Onion	Pokeweed	Potatoes	Pumpkin
	Spinach	Squash	Sweet Potato	Tomato	Turnips
	Yams				
Fruits	Apples	Bananas	Blueberries	Coconut	Dates
	Lemon	Mango	Peach	Pear	Pineapple
	Raisin	Raspberries	Watermelon		
Herbs/Spices	Basil	Black Pepper	Cardamom	Chili	Cilantro
	Cinnamon	Cloves	Coriander	Cumin	Fenugreek
	Garlic	Ginger	Mustard	Nutmeg	Salt
	Sesame	Sumac	Turmeric	Vanilla	
Nuts/Seeds	Cashew	Chia	Peanut	Pecans	Pistachio
	Walnut				
Cereals/Grains	Basmati Rice	Corn Meal	Millet	Oats	Quinoa
	Semolina Flour	Sorghum	Teff	Wheat Flour	
Legumes	Black-eye Peas	Chickpeas	Kidney Beans	Lentils	Pinto Beans
	Red Beans				
Sweetener	Honey	Molasses	Sugar		

Metro South Health. “Food Ad Cultural Practices of Somali Community in Australia - A Community Resource .” State of Queensland, 2015.

Noor , Abderazzaq, and Shukri Abdikarim. “The Somali Kitchen .” *The Somali Kitchen*, 2019, www.somalikitchen.com/.

Kittler, et al. Food and Culture. Seventh ed., Cengage Learning, 2017.

Russian Cultural Foods

Scott County Edible Landscape

Vegetables	Asparagus	Beets	Broccoli	Brussels Sprouts	Cabbage (red and green)
	Carrots	Cauliflower	Celery	Celery Root	Chard
	Cucumbers	Eggplant	Endive	Green Beans	Kohlrabi
	Leeks	Lettuce	Mushrooms	Olives	Onions
	Parsnips	Peas	Green Peppers	Potatoes	Radishes
	Sorrel	Spinach	Tomatoes	Turnips	
Fruit	Apples	Apricots	Blackberries	Blueberries	Sour Cherries
	Sweet Cherries	Cranberries	Currants	Dates	Gooseberries
	Grapefruit	Grapes	Lemons	Lingonberries	Melons
	Oranges	Peaches	Pears	Plums	Prunes
	Quinces	Raisins	Raspberries	Rhubarb	Strawberries
Herbs/Spices	Allspice	Anise	Basil	Bay Leaves	Borage
	Capers	Caraway	Cardamom	Chervil	Chives
	Cinnamon	Cloves	Curry Powder	Dill	Garlic
	Ginger	Horseradish	Juniper	Lemon	Lovage
	Mace	Marjoram	Mint	Mustard	Paprika
	Parsley	Pepper	Poppy seed	Rosemary	Rose Water
	Saffron	Sage	Savory	Tarragon	Thyme
	Vanilla	Vinegar	Woodruff		
Nuts/Seeds	Almonds	Chestnuts	Filbert	Pecans	Poppy Seeds
		Sunflower Seeds		Walnuts	
Cereals/Grains	Barley	Buckwheat	Corn	Millet	Oats
	Potatoes	Starch	Rice	Rye	Wheat
Sweeteners	Honey	White Sugar	Brown Sugar	Molasses	

Kittler, et al. Food and Culture. Seventh ed., Cengage Learning, 2017.

FOOD INSECURITY

PRESENTED BY: SCOTT COUNTY PUBLIC HEALTH 2019

Food Insecurity is the lack of consistent access to enough food for an active and healthy life

THE U.S. DEPARTMENT OF AGRICULTURE

INTRODUCTION

There is a high interest in improving the health of Scott County. In 2018, it was estimated that sixty-seven percent of deaths among residents were due to chronic disease.[1] Although the health of a community is a product of many factors, good nutrition is important when promoting a healthy lifestyle.[2] Great effort has been made to educate the public about making better food choices, but food choice is not merely based on preference and knowledge.[3] Increasingly, public health providers are finding that resolving food insecurity can help to improve community health.[4] Feeding America estimated that over 8,000 Scott County residents were food insecure in 2016.[5]

FOOD SECURITY

Food security is a measure that refers to ones ability to attain enough food for an active and healthy life.

The U.S. Department of Agriculture (USDA) uses a range to describe food security which is divided into two categories, food secure and food insecure.[6]

FOOD SECURE

High food secure: No reported problems or limitation to food-access.

Marginal food security: One or two reported incidents of anxiety over food sufficiency.

FOOD INSECURE

Low food security: Reports of reduced quality, variety, or desirability of diet.

Very low food security: Reports of multiple incidents of disrupted eating patterns and reduced food intake.

CAUSES

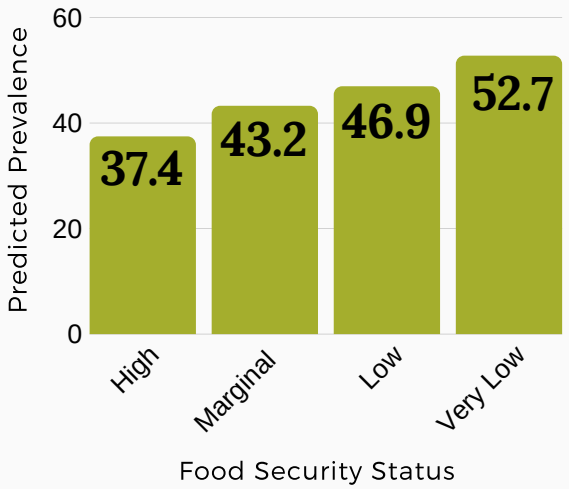
Causes of food insecurity are unique to each household and can be long term or temporary. Issues with poverty, homelessness, high living costs, high medical costs, unemployment, limited transportation, disability and isolation all have an influence on food security.[7, 8]

FOOD INSECURITY AND HEALTH

Healthy minds and bodies require nutritious food at every age. When individuals are food insecure they're often forced to resort to coping mechanisms to alleviate hunger and stretch their food supply.[9] Examples of these include skipping meals, reducing meal size, and consuming cheaper foods that are typically high in calories and low in nutritional value.

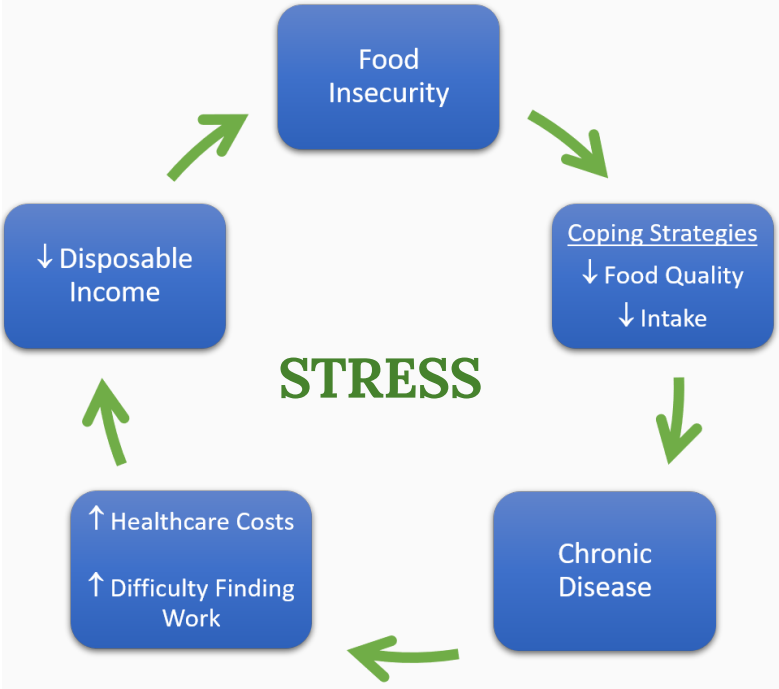
Dependence on foods low in nutritional value often leads to poor nutritional status, weight gain, obesity, and diet-related chronic disease. As part of the 2011 - 2015 National Health Interview Survey, the USDA found that the more food insecure an individual was, the more likely they are to have a chronic illness.[10]

Adults in households with more severe food insecurity are more likely to have a chronic illness



Christian A. Gregory, Alisha Coleman-Jensen. Food Insecurity, Chronic Disease, and Health Among Working-Age Adults, ERR-235, U.S. Department of Agriculture, Economic Research Service, July 2017.

THE CYCLE OF FOOD INSECURITY AND HEALTH



There is a cyclic relationship between food insecurity and health. Once a person or household enters this cycle it becomes increasingly difficult for them to escape it.[9, 11]

Resolving food insecurity does not guarantee other issues within the cycle will resolve, however, it does disrupt the cycle and alleviates some of the stress that individuals from food insecure households experience.

T1 Scott County Public Health. (2018, March). 2017 Community Health Improvement Annual Report[PDF]. Scott County Public Health.
2 HHS Office, & Council on Sports. (2017, January 26). Importance of Good Nutrition. Retrieved from https://www.hhs.gov/fitness/eat-healthy/importance-of-good-nutrition/index.html
3 Scott County Public Health. (2019). 2018 Report to the Community[PDF].
4 USDA. (n.d.). Nutrition and Public Health. Retrieved June, 2015, from https://www.fns.usda.gov/partnerships/nutrition-public-health
5 Feeding America Research. (2019, May). Map the Meal Gap 2019: Overall and Child Food Insecurity by County in 2017. Retrieved from https://public.tableau.com/profile/feeding.america.research#!/vizhome/2017StateWorkbook-Public_15568266651950/CountyDetailDataPublic
6 USDA. (2018, September). Definitions of Food Security. Retrieved from https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/definitions-of-food-security/
7 WHO. (2003). Social Determinants of Health[PDF]. World Health Organization.
8 Feeding America. (2018). Map the Meal Gap 2018[PDF]. Feeding America.
9 Second Harvest. (2019, March 11). The Cycle of Hunger and Health Issues. Retrieved from https://secondharvestmidtn.org/cycle-of-hunger-and-health-issues/
10 USDA. (2017, July). Food Insecurity, Chronic Disease, and Health Among Working-Age Adults[PDF]. USDA.
11 Seligman, H. K., & Schillinger, D. (2010, July). Hunger and Socioeconomic Disparities in Chronic Disease[PDF]. The New England Journal of Medicine.

Future Development of Plant List – Work for Students

There is a need to further develop certain aspects of the master edible plant list. Students interested in this project have an opportunity to practice identifying edible portions of plants, creating descriptions for consumers, and determining proper food safety/handling recommendations and instructions. Individuals who work on this project need to be self-motivated and have an eye for detail. The master plant list is large, but nowhere completed. After all the missing information is filled in and previous listed information is confirmed correct, it is recommended that additional plants species and varieties of plants be identified and added to the list. Below are the recommended tasks that should be completed by future student investigators.

Tasks for Current List:

- Confirm that all plants on the list are edible.
- Confirm that all plants on the list are safe for human consumption.
- Determine and label edible portions of each plant.
- Determine edible uses.
    - Example: Leaves are used for tea, roots can be eaten raw or cooked.
- Identify potential hazards for each plant that could cause harm to consumers. Provide a description of the potential hazards, how each hazards can be avoided, and rational as to why the plant should still be included in the edible plant list.
- Determine and describe identification characteristics of plants so that consumers can confirm that they have found the correct plant.
- Determine and describe harvesting instruction for each plant and edible portion of the plant.
- Create food safety guidelines for the edible portion of each plant. What are the proper cleaning, preparing/handling, and storage recommendations?
- Identify and label allergens.
- Find recipes for edible portions of the plants.
- Continue to update nutrition facts.

Further Development of List:

- Continue to identify different varieties of each species of plant to further develop the plant list.
    - For example, there are many varieties of apples. I do not think all of the varieties are listed on the plant list.
- Identify other species of edible plants that were not included on the list.

Potential programs at the Univ. of Minnesota that could work on the plant list & project

Undergraduate Majors:

- Agricultural Education
- Agricultural Communication and Marketing
- Agricultural and Food Business Management
- Animal Science
- Applied Economics
- Environmental Sciences, Policy and Management
- Fisheries, Wildlife and Conservation Biology
- Food Science
- Food Systems
- Forest and Natural Resource Management
- Nutrition
- Plant Science
- Sustainable Systems Management

Undergraduate Minors:

- Agronomy
- Agricultural and Food Business Management
- Animal Science
- Applied Economics
- Bioproducts Engineering
- Climatology
- Corporate Environmental Management
- Entomology
- Environmental Sciences, Policy and Management
- Fisheries and Wildlife
- Food Science
- Food Systems
- Forest Ecosystem Management and Conservation
- Geographic Information Science
- Horticulture
- International Agriculture
- Marine Biology
- Native American Environmental Knowledge
- Nutrition
- Park and Protected Area Management
- Soil Science
- Sustainable Agriculture
- Sustainability Studies
- Urban and Community Forestry
- Water Science
- Wildlife Care and Handling Minor

Nutrition Related Future Recommendations

Fact Sheets: Topics and information to include

- Anemia
    - What it is
    - Causes
    - How it's measured/diagnosed (Should mention that lab detection is in the later stages of anemia)
    - Signs and symptoms
    - Common causes
    - Implications on childhood health and future academic, social
    - Rates of anemia in Scott County (data would likely come from WIC)
    - Treatment (Food and medication)

- Iron
    - What it is
    - How it pertains to health
        - What it does
        - Hows its absorbed
        - How its stored
    - How heme and non-heme iron are different
    - Plant sources of iron (highlight plants on the master plant list)
- Labeling laws
    - https://www.law.cornell.edu/cfr/text/21/101.54
- Common deficiencies in Scott County
    - What deficiencies are common and what plants can help increase dietary intake

Master Plant list

- Label plants that are high sources and good sources of nutrients
    - Students will need to review labeling laws, Reference Daily Intake (RDI) and Dietary Reference Values (DRV). Watch for changes in the 2020 Guidelines ~Advisory committee is reviewing now
- Label plants that could be used to increase intake of nutrients that cause deficiencies

Foraging in an Edible Landscape: Resources
From the University of Minnesota - Extension

Agroforestry:
Forest Farming
Gathering and growing edible fruits and nuts
Recommended trees for Minnesota

Plants:
Planting and Growing Guides
Edible Flowers
Flowers for Pollinators
Fruit
Vegetables
Native Plants

Other Classes, Curriculums, and Guides:
Hennepin County Master Gardeners - Edible Landscaping
Midwest Permaculture - Permaculture Design Certificate
Big River Permaculture - 2019 Urban Permaculture Design Course
The Community Food Forest Handbook
Minnesota Harvester Handbook
Foraging and Feasting